

[C A S E R E P O R T]

Itching to Learn: School Chair Allergic Contact Dermatitis on the Posterior Thighs

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ABSTRACT

A 10-year-old girl with a history suggestive of nickel allergy presented with pruritic, eczematous plaques on her posterior thighs. Patch testing revealed sensitivities to nickel, cobalt, and chromium. The pattern of her involvement suggested an “outside job,” and subsequent investigations confirmed that the exposed metal fasteners on her school chair were the likely source of her focal contact dermatitis. Medical history-taking, clinical observation, and investigative follow-through are essential when trying to identify a specific source of contact dermatitis in the pediatric and adolescent populations. (*J Clin Aesthet Dermatol.* 2014;7(4):48–49.)

A 10-year-old girl complained of a pruritic skin eruption on her posterior thighs for more than a year. The rash worsened in the spring, completely resolved over summer vacation, and recurred with the start of the new school year. The patient had pierced ears and a history of earlobe itching and irritation with costume jewelry use, but no history of atopic dermatitis.

Physical examination showed symmetric, round, pink-red, eczematous patches on the lateral, posterior thighs (Figures 1A and 1B). The remainder of her skin exam was normal. T.R.U.E. (thin layer rapid-use epicutaneous patch, Smart Practice, Phoenix, Arizona) testing read 96 hours after patch application (patches removed at 48 hours) demonstrated indurated eczematous square plaques at the patch application sites of nickel (++) and cobalt (+) and eczematous papules confined to the chromium (potassium dichromate) patch application site (equivocal) (Figure 1C). The exposed metal fasteners on her school chair correspond to the areas of her dermatitis (Figure 1D), and dimethylglyoxime testing showed that the metal fasteners contain nickel (Figure 1E).

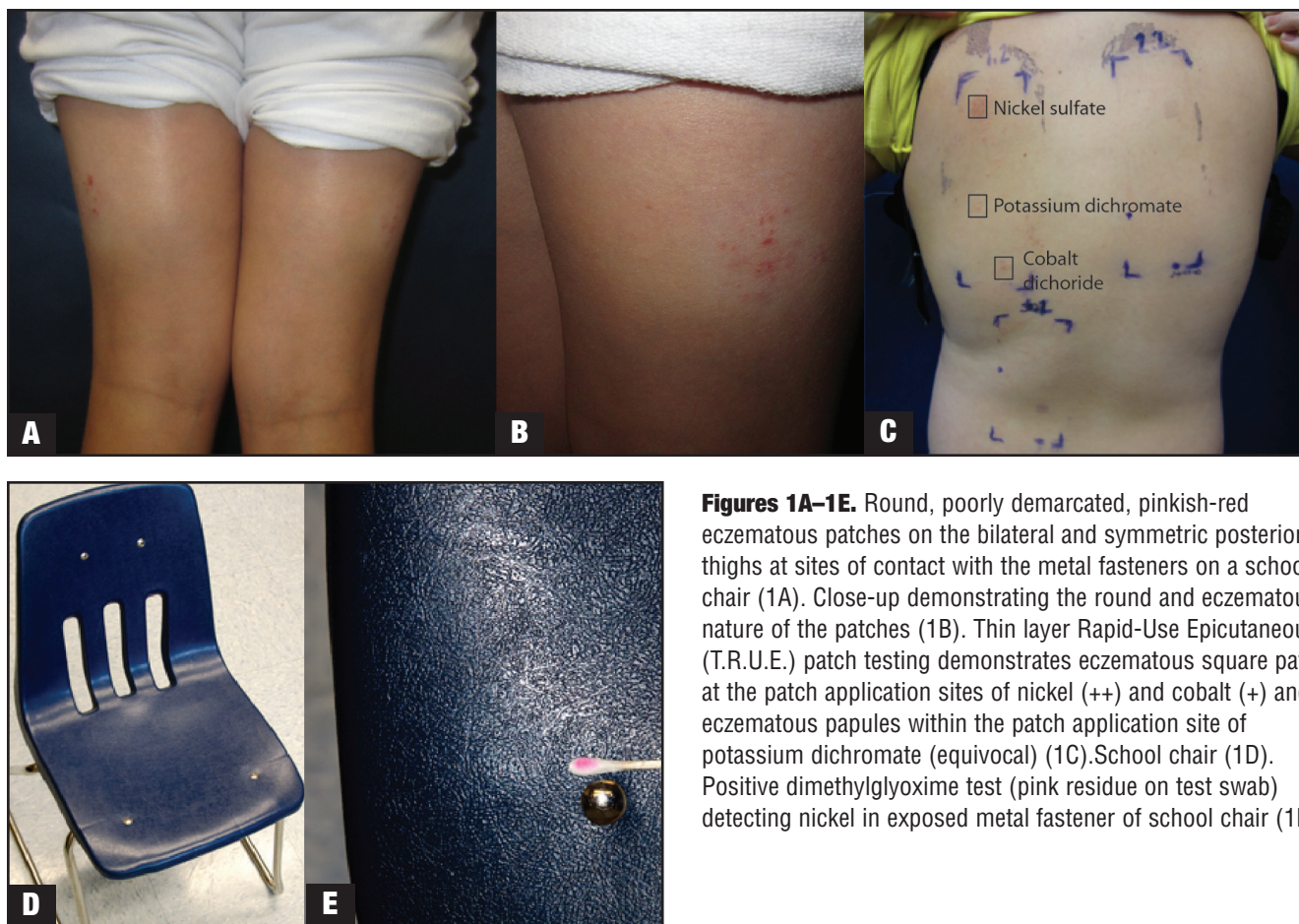
The history and pattern of dermatitis, skin patch testing results, and positive dimethylglyoxime test for nickel from

the metal fastener in her school chair confirm the diagnosis of allergic contact dermatitis to the exposed metal surfaces on her school chair seat. The family confirmed that metal fasteners on her school chair directly contact her legs at the exact sites of the rash. The “school chair sign,” described in 2004 with a case series of two children, is recognized by symmetric eczematous papules or patches on the posterior thighs and has been attributed to nickel contact allergy.¹ Allergic contact dermatitis is becoming increasingly recognized in children,² with nickel representing one of the most common and clinically relevant pediatric contact allergens discovered on patch testing. Interestingly, patients with nickel contact allergy are frequently sensitive to more than one metal. On patch testing, the patient had allergic contact dermatitis reactions to nickel and cobalt and an equivocal reaction to chromium. Commercial metals often contain alloys of nickel and cobalt, and the co-sensitization rate of nickel and cobalt in children may be as high as 68 percent.³

This posterior thigh presentation of metal contact allergy (potentially triggered by nickel, cobalt, and/or chromium) should be added to the more commonly recognized patterns of nickel dermatitis (e.g., earlobes and

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Figures 1A–1E. Round, poorly demarcated, pinkish-red eczematous patches on the bilateral and symmetric posterior thighs at sites of contact with the metal fasteners on a school chair (1A). Close-up demonstrating the round and eczematous nature of the patches (1B). Thin layer Rapid-Use Epicutaneous (T.R.U.E.) patch testing demonstrates eczematous square patches at the patch application sites of nickel (++) and cobalt (+) and eczematous papules within the patch application site of potassium dichromate (equivocal) (1C). School chair (1D). Positive dimethylglyoxime test (pink residue on test swab) detecting nickel in exposed metal fastener of school chair (1E).

infra-umbilical abdomen near metal buttons). Treatment includes avoidance of the metal exposures with use of chair pads or chairs without uncovered metal and mid-potency topical corticosteroid application as needed.

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